

NOVEL APPROACHES FOR MODELLING FLOOD RISK AND CASCADING EFFECTS

Doctoral and postdoctoral positions

The University of Liège is a leading research institution with more than 3500 researchers and over 2000 doctoral students active across all disciplines.

The research group **Hydraulics in Environmental & Civil Engineering** (HECE) is offering doctoral and/or postdoctoral positions for conducting research related to modelling flood risk and cascading effects, in the framework of an international project co-funded by the EU.

JOB DESCRIPTION

Two positions are available, each of them primarily focused on one of the two topics below.

- **Modelling the monetary damages of riverine floods across various societal sectors:** design and implementation of surveys, analysis of existing and newly collected data, model development (incl. machine-learning techniques) and validation (based on data from the 2021 European mega-flood), application to real-world case studies in Belgium and Germany based on 2D hydrodynamic modelling outcomes.
- **Modelling the hydrodynamic effects of bridge clogging by floating debris:** analysis of existing field data and laboratory observations, site monitoring, development of process-based models, model testing and coupling with an operational 2D hydrodynamic model, application to real-world case studies in Belgium and Germany.

Both positions are open either to a doctoral candidate (PhD position) or to a PhD-holder (post-doc position).

SPECIFIC DUTIES & ACTIVITIES

Main tasks

- ▶ Research on modelling flood risk and cascading effects
- ▶ Writing publications and scientific reports
- ▶ Participation in scientific events (e.g., project meetings, conferences)

Occasional tasks

- ▶ Contribution to teaching
- ▶ Supervision of master projects and internships related to the research
- ▶ For postdoctoral researchers: co-supervision of PhD students
- ▶ Assistance/collaboration in organizational and administrative tasks
- ▶ Writing proposals
- ▶ Contribution to applied engineering projects

YOUR PROFILE

- ▶ Background in civil engineering, environmental engineering, geosciences, environmental physics, applied physics, data sciences or a related field.
- ▶ Proficiency in computer programming (e.g., Python)
- ▶ Fluency in English
- ▶ Fluency in French is an asset

Postdoctoral candidates must have completed their PhD within the last 6 years.

OUR OFFER

Fully funded positions for up to four years (annual contract renewal, after a trial period of three to six months). Basic gross monthly salary for full-time work equivalent to about 5,000 EUR.

Based on your career path and personal details, ULiège Human Resources Department will determine the exact gross monthly salary. Employment benefits such as reimbursement of public transportation fees and access to a variety of training opportunities are also included.

For more information about training, you may refer to this [link](#).

Dynamic working environment, with stimulating scientific support, state-of-the-art facilities, and advanced computational modelling tools.

WORK ENVIRONMENT

The group HECE leads basic and applied research in the fields of hydrology, flood risk management, hydraulic engineering as well as fluvial hydrodynamics. The research builds upon a tight coupling between computational modelling and laboratory experiments.

The group develops the modelling system WOLF, which includes rainfall-runoff models as well as 1D and 2D flow and transport models. It is based on an in-house finite volume numerical scheme and is equipped with a dedicated GIS-type user interface. WOLF is routinely used for education, consultancy, and research ([link](#)). The group also operates a unique experimental facility, equipped with state-of-the-art measurement techniques.

The group HECE is part of the Research unit Urban & Environmental Engineering ([link](#)), with 25 faculty staff and 100+ researchers.

University of Liège complies with the European HR Strategy for Researchers (HRS4R), creating an inclusive and supportive research environment through a free assistance offered to incoming researchers and their families. For more details about what ULiège can offer you as a foreign researcher, please see [https://www.recherche.uliege.be/cms/c_9281209/en/mobilite-
euraxess](https://www.recherche.uliege.be/cms/c_9281209/en/mobilite-euraxess) or contact: euraxess@uliege.be.

HOW TO APPLY

Interested candidates should apply by filling in this online form:

<https://forms.office.com/e/iqGAK0grq2>

Short-listed candidates will have to take part in an interview at the University of Liege. The positions will remain open until filled; but the selection will start from March 15th, 2024. Starting date is expected in the period from April to September 2024.

CONTACT DETAILS AND FURTHER INFORMATION

Informal inquiries about the project are welcome. Please feel free to contact prof. Benjamin Dewals by email (b.dewals@uliege.be) or phone (+3243669283).

Information on the processing of your personal data

The personal data collected follow your application will be processed by the research unit Urban & Environmental Engineering of the University of Liege for the purpose of organizing the selection and recruitment.

These data will be processed based on the execution of pre-contractual measures (art. 6-1, b. of the RGPD)

These data will be kept for the duration of the selection procedure and, at the most, 9 months after the publication of the job offer. This data will not be passed on to third parties.

In accordance with the provisions of the General Data Protection Regulation (EU 2016/679), you may exercise your rights relating to this personal data (right of access, rectification, deletion, limitation, and portability) by contacting the ULiège Data Protection Officer (dpo@uliege.be - Mr. Data Protection Officer, Bât. B9 Cellule "GDPR", Quartier Village 3, Boulevard de Colonster 2, 4000 Liège, Belgium). You also have the right to lodge a complaint with the Data Protection Authority (<https://www.autoriteprotectiondonnees.be> , contact@apd-gba.be).